CLAIMS

What is claimed is:

1   1.   A method comprising:

2   receiving digitized voice data from a user;

3   processing the voice data to determine one or more phases recognized as the

4   digitized voice data provided by the user based on a currently active recognition

5   grammar; and

6   when more than one phrase is recognized as the digitized voice data provided by

7   the user as a result of voice-recognition uncertainty, using user-specific context

8   information to choose a recognized phrase from the one or more phrases recognized as

9   the digitized voice data.

1   2.   The method of claim 1, wherein receiving the digitized voice data further

2   comprises:

3   receiving analog voice data from the user via a public switched telephone

4   network; and

5   converting the analog voice data to a digital format as the digitized voice data.

1   3.   The method of claim 1, wherein receiving the digitized voice data further

2   comprises:

3   receiving analog voice data from the user via a wireless communications network;

4   and

5   converting the analog voice data to a digital format as the digitized voice data.

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1   4.   The method of claim 1, wherein the digitized voice data is received via a

2   wireless communications network.

3   5.   The method of claim 1, wherein the digitized voice data is received from a

4   public switched telephone network.

5   6.   The method of claim 1, wherein the using the user-specific context

6   information further comprises:

7   selecting elements of uncertainty within the one or more recognized phrases;

8   selecting the user-specific context information from a database based on the

9   elements of uncertainty;

10   eliminating phrases within the one or more recognized phrased based on the user-

11   specific context information regarding the elements of uncertainty; and

12   selecting a final phrase as the recognized phrase once all other phrases within the

13   one or more recognized phrases are eliminated.

1   7.   The method of claim 6, further comprising:

2   storing user context information contained in the database including e-mail

3   information, voice mail information, calendar information and location information.

1   8.   The method of claim 1, wherein the processing of the voice data further

2   comprises:

3   processing the voice data using an N-best speech recognition engine; and

4   receiving the list of one or more phrases as N-phrases recognized as the voice data

5   provided by the user including a confidence value associated with each of the N-phrases.

1   9.   The method of claim 8, wherein the using the user-specific context

2   information further comprises:

3   selecting a phrase from the one or more recognized phrases having a lowest

4   confidence value;

5   selecting elements of uncertainty between the phrase and the one or more

6   recognized phrases;

7   selecting the user-specific context information from a database based on the

8   elements of uncertainty;

9   eliminating the phrase when the user-specific context information regarding the

10   elements of uncertainty validates the lowest confidence value of the phrase; and

11   repeating the selecting, selecting, selecting and eliminating steps until a final

12   phrase is determined as the recognized phrase.

1   10.   A computer readable storage medium including program instruction that

2   directs a computer to function in a specified manner when executed by a processor, the

3   program instructions comprising:

4   receiving digitized voice data from a user;

5   processing the voice data to determine one or more phases recognized as the

6   digitized voice data provided by the user based on a currently active recognition

7   grammar; and

8   when more than one phrase is recognized as the digitized voice data provided by

9   the user as a result of voice recognition uncertainty, using user-specific context

10   information to choose a recognized phrase from the one or more phrases recognized as

11   the digitized voice data.

1   11.   The computer readable storage medium of claim 10, wherein the

2   instruction for receiving the digitized voice data further comprises:

3   receiving analog voice data from the user via a public switched telephone

4   network; and

5   converting the analog voice data to a digital format as the digitized voice data.

1   12.   The computer readable storage medium of claim 10, wherein the

2   instruction for receiving the digitized voice data further comprises:

3   receiving analog voice data from the user via a wireless communications network;

4   and

5   converting the analog voice data to a digital format as the digitized voice data.

1   13.   The method of claim 10, wherein the digitized voice data is received via a

2   wireless communications network.

3   14.   The method of claim 10, wherein the digitized voice data is received from

4   a public switched telephone network.

5   15.   The computer readable storage medium of claim 10, wherein the

6   instruction for using the user-specific context information further comprises:

7   selecting elements of uncertainty within the one or more recognized phrases;

8   selecting the user-specific context information from a database based on the

9   elements of uncertainty;

10   eliminating phrases within the one or more recognized phrased based on the user-

11   specific context information regarding the elements of uncertainty; and

12   selecting a final phrase as the recognized phrase once all other phrases within the

13   one or more recognized phrases are eliminated.

1   16.   The computer readable storage medium of claim 15, further comprising an

2   instruction for:

3   storing user context information contained in the database including e-mail

4   information, voice mail information, calendar information and location information.

1   17.   The computer readable storage medium of claim 10, wherein the

2   instruction for processing of the voice data further comprises:

3   processing the voice data using an N-best speech recognition engine; and

4   receiving the list of one or more phrases as N-phrases recognized as the voice data

5   provided by the user including a confidence value associated with each of the N-phrases.

1   18.   The computer readable storage medium of claim 17, wherein the

2   instruction for using the user-specific context information further comprises:

3   selecting a phrase within the one or more recognized phrases having a lowest

4   confidence value;

5   selecting elements of uncertainty between the phrase and the one or more

6   recognized phrases;

7   selecting the user context information regarding the user from a database based on

8   the elements of uncertainty;

9   eliminating the phrase when the user-specific context information regarding the

10   elements of uncertainty validates the lowest confidence value of the phrase; and

11   repeating the selecting, selecting and eliminating steps until a final phrase is

12   determined as the recognized phrase.

1   19.   A voice recognition system comprises:

2   a voice interface to receive digitized voice data from a user;

3   a voice recognition engine processes the voice data to determine one or more

4   phases recognized as the digitized voice data provided by the user based on a currently

5   active recognition grammar;

6   a database containing user context information; and

7   a user context natural language processor having a capability to select user-

8   specific context information from the PIM database and use the user-specific context

9   information to choose a recognized phrase from the one or more phrases recognized as

10   the voice data when the voice recognition engine recognizes more than one phrase as the

11   voice data provided by the user.

1   20.   The system of claim 19, wherein voice interface further comprises:

2   a public switched telephone network interface to receive analog voice data from

3   the user; and

4   an analog-to-digital conversion unit to convert the analog voice data to a digital

5   format as the digitized voice data.

1   21.   The system of claim 19, wherein voice interface further comprises:

2   a wireless communications network interface to receive analog voice data from

3   the user; and

4   an analog-to-digital conversion unit to convert the analog voice data to a digital

5   format as the digitized voice data.

1   22.   The system of claim 19, wherein voice interface further comprises:

2   a public switched telephone network interface to receive digital voice data from

3   the user.

4   23.   The system of claim 19, wherein voice interface further comprises:·

5   a wireless communications network interface to receive digital voice data from

6 the user.

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8   24.   The system of claim 19, wherein the user context information contained in

9 the PIM database includes e-mail information, voice mail information, calendar

10 information and location information.

1   25.   The system of claim 19, wherein the voice recognition engine further

2 comprises:

3   an N-best speech recognition engine and generates N-phrases recognized as the

4 voice data including a confidence value associated with each of the N-phrases as the list

5 of one or more phrases recognized as the voice data provided by the user.

1   26.   The system of claim 25, wherein the user context natural language

2 processor

3   selects a phrase within the one or more recognized phrases having a lowest

4 confidence value,

5   selects conflicting elements between the phrase and the one or more recognized

6 phrases,

7   selects the user context information regarding the user from a database based on

8 the conflicting elements,

9   eliminates the phrase when the user context information regarding the conflict

10 elements validates the lowest confidence value of the phrase; and

11   repeats the select, select and eliminate operations until a final phrase is

12 determined as the recognized phrase.